



MAIL STOP APPEAL BRIEF-PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE
THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of
Osamu TANAKA et al.

Serial No. 09/934,839

Appeal No. _____

Filed August 23, 2001

GROUP 1774

RETROREFLECTIVE SHEETING HAVING
PRINTED LAYER

APPEAL BRIEF

MAY IT PLEASE YOUR HONORS:

1. Real Party in Interest

The real party in interest in this appeal is the assignee, Nippon Carbide Kogyo Kabushiki Kaisha of Tokyo, Japan.

2. Related Appeals and Interferences

None.

3. Status of Claims

Claims 1-17 and 19-20 are pending, claim 18 having been cancelled. Appeal is being taken to the final rejection of claims 1-17 and 19-20 made by the Official Action mailed December 3, 2003. A listing of the claims is attached.

4. Status of Amendments

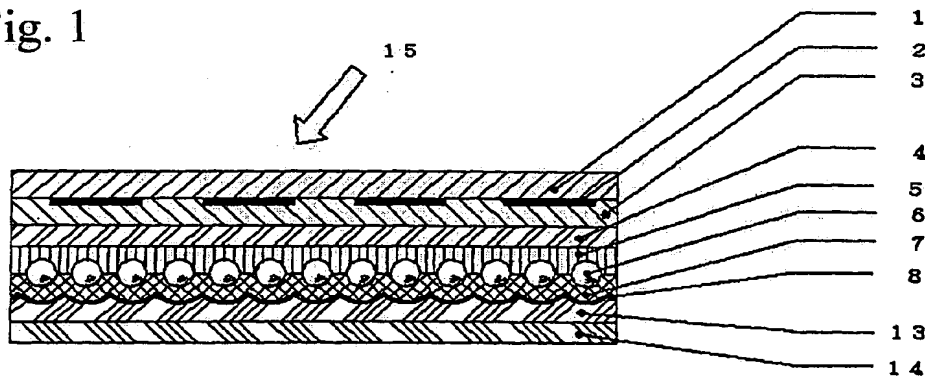
An Amendment After Final Rejection filed on March 3, 2004 was not entered. The last entered Amendment was the September 15, 2003 Amendment. Accordingly, the claims on

appeal are 1-17 and 19-20, as amended in the Amendment filed on September 15, 2003.

5. Summary of Invention

The invention is a retroreflective sheeting embedding a printed layer comprised of tiny discontinuous printed parts that together form images elements, e.g., characters of road signs.

Fig. 1



The inventive sheeting comprises a light-incident, light-transmissive, fluorine-containing resin film layer (1 of Figure 1 above) adhered, via an adhesive layer (3), to a smooth-surfaced retroreflective base (4-14). Provided between the resin film and the adhesive layer is a printed layer of discontinuous and individual printed parts (2). See paragraph 0010 of the published application. The

discontinuous and printed parts together form images elements, but are individually sized to avoid the resin film layer from separating from the base, even when liquid penetrates into the interface between the resin film and the printed layer. See the Abstract, application paragraphs 0008, and 0039.

The retroreflective base (4-14) on which the resin film is adhered is not particularly limited, provided that it has a smooth surface layer on its light-incident side so that the base has a flat front face (application paragraph 0020). Other bases are illustrated in Figures 2-4.

The inventive sheet is useful for signs such as road signs and construction signs where the printed parts are grouped to form image elements of the signs. However, the individual printed parts each have a maximum printed length of no more than 10 mm and are isolated from one another by an interval of isolation of at least 1 mm (application paragraphs 0002, 0039-0040).

By providing a printed layer with individual printed parts of this size and spacing, the present invention exhibits the advantageous effects that the discontinuous and individual printed parts are isolated from each other so that even when water or solvent enters the

interface between the fluorine-containing resin film and the printed layer, as a result of outdoor use or a cleaning operation with a solvent to remove stains or dirt, the penetrating water or solvent stays in the independent printed parts and is not allowed to spread all over the retroreflective sheeting (application paragraph 0037).

6. Issues

A first issue on appeal is whether Claims 1-11, 13-14, 16, and 19-20 were properly rejected under section 103 as obvious over PRICONE et al. 5,213,872 ("PRICONE") in view of NILSEN et al. 6,258,443 ("NILSEN"); and whether Claims 12 and 17 were properly rejected under section 103 as obvious over PRICONE and NILSEN in further view of OCHI et al. 6,110,574 ("OCHI").

A second issue on appeal is whether Claims 1-6, 9-13, 16-17, and 19-20 were properly rejected under section 103 as obvious over OCHI in view of PRICONE; whether Claims 7-8, and 14 were properly rejected under section 103 as obvious over OCHI and PRICONE in further view of NILSEN; and whether Claim 15 was properly rejected under section 103 as obvious over OCHI and PRICONE in further view of METHA et al. 6,416,911.

7. Grouping of Claims

As to the first issue on appeal, all the claims stand or fall together except for claims 5 and 20 which stand or fall together.

As to the second issue on appeal, all the claims stand or fall together except for claims 5 and 20 which stand or fall together.

Claims 5 and 20 stand or fall together, but apart from independent claims 1 and 13 because they recite a specific preferred embodiment wherein the recited separation interval is especially significant.

8. Arguments

Arguments Concerning the First Issue

The Examiner takes the position that PRICONE in view of NILSEN renders obvious all the features recited by the pending independent claims 1 and 13, and dependent claims 5 and 20. This position is in error.

NILSEN is offered for teaching retroreflective sheeting comprising prisms, reflective layers adjacent to adhesives, and adhesive tie layers. NILSEN is not offered as to the recited printed parts.

The rejection is improper as any proper combination of PRICONE and NILSEN does not render obvious the

independent claims' recitation concerning printed layer comprising printed parts with "the discontinuous and printed parts being isolated from one another, a maximum printed length of each part being 10 mm or smaller, an interval of isolation between each part and an adjacent part being at least 1 mm at the narrowest." This is the recitation of claim 1; the claim 13 recitation is the same.

The rejection is also improper as there is no teaching as to the claims 5 and 20 recitation that the separation interval of the printed parts is 1 mm.

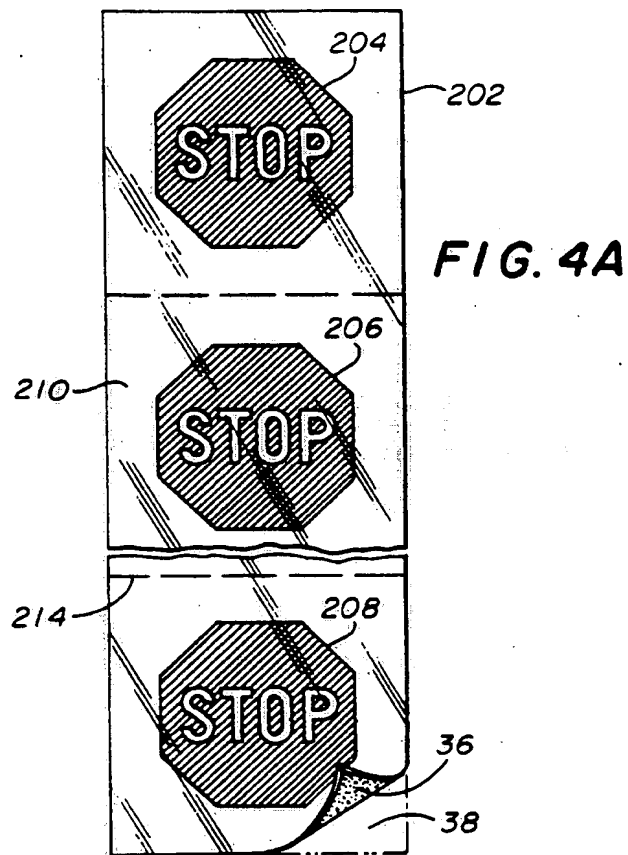
The sizing and separation interval of these printed parts must not be ignored as the sizing and interval must, in practical application, be selected to achieved the dual purposes of being able to allow the printed parts to function as image elements while still being isolated from each other so that even when water or solvent enters the interface between the fluorine-containing resin film and the printed layer, the penetrating water or solvent stays in the independent printed parts and is not allowed to spread all over the retroreflective sheeting (application paragraph 0037).

As to the final rejection of these claims, in beginning of the full paragraph of the December 3, 2003

Official Action page 4, the Examiner acknowledges that "PRICONE does not provide the spacing requirements of instant claims 1, 3-5, 19 and 20." Claim 13 has the same spacing and sizing requirements as claim 1 and therefore the Examiner has acknowledged that those requirements are not disclosed by PRICONE. Later in the same paragraph, the Examiner acknowledges that PRICONE does not disclose the recited maximum length of each printed part.

The Examiner states that as to both spacing and length, these are optimizable features and that it would have been obvious to modify the sheeting of PRICONE to optimized values since "the spacings and area are effected by the process conditions of the machine, e.g., time and speed." This is from the last sentence of Official Action page 4.

However, any realistic optimized values would put the printed parts of PRICONE outside the recited length of claims 1 and 13 when considering what PRICONE actually discloses.



PRICONE teaches the manufacture of stop signs (Figure 4A above) with printed "stop" image elements 204, 206, 208. These stop image elements are, in themselves, almost the same size as the final road signs. Such stop elements are clearly greater than 10 mm in length and would not be reduced to be "less than 10 mm" under any reasonable optimization. Thus, PRICONE teaches away from the present recited sizing requirement of each printed part being within a maximum length of 10 mm (claims 1 and 13).

Since one of skill would not manufacture road stop signs with a maximum length of 10 mm ($< \frac{1}{2}$ "), the error in making this rejection is believed to be clear. Further, although the interval spacing between such signs could be optimized, a separation interval 1 mm as per claims 5 and 20 would be unnecessarily narrow given the nature of the stop sign product/process disclosed by PRICONE.

Additionally, it is not clear that such a small dimension could be achieved with the PRICONE equipment.

The disclosure in column 4, line 50 through column 5, line 15 of PRICONE is offered by the Examiner as disclosing adjusting spacing during manufacturing. This passage relates to the embossing equipment and not the resulting product. Therefore, the passage is not believed to support the proposition that it would be obvious to space apart, at 1 mm, stop image elements for signs having such a large scale. Further, as noted, the equipment disclosed does not appear to have a cutting accuracy that would motivate one of skill to reduce the spacing to a mere 1 mm.

The rejection is improper as PRICONE in combination with NILSEN does not teach or suggest the recited printed layer comprising printed parts with "the discontinuous and printed parts being isolated from one

another, a maximum printed length of each part being 10 mm or smaller, an interval of isolation between each part and an adjacent part being at least 1 mm at the narrowest" or the specific claim 5 and 20 recitation that the separation interval of the printed parts is 1 mm.

Arguments Concerning the Second Issue

The Examiner takes the position that OCHI in view of PRICONE renders obvious all the features recited by the pending independent claims 1 and 13, and dependent claims 5 and 20. This position is in error.

The rejection is improper as any proper combination of OCHI and PRICONE does not render obvious the independent claims' recitation concerning printed layer comprising printed parts with "the discontinuous and printed parts being isolated from one another, a maximum printed length of each part being 10 mm or smaller, an interval of isolation between each part and an adjacent part being at least 1 mm at the narrowest." The rejection is also improper as there is no teaching as to the claims 5 and 20

recitation that the separation interval of the printed parts is 1 mm.

OCHI is offered as teaching the light-incident layer and the resin film laminated with an adhesive layer (paragraph spanning pages 5-6 of Official Action).

In the first full paragraph of Official Action page 6, the Examiner acknowledges that OCHI does not teach the printed discontinuous and individual parts between the film and adhesive. For this, the Examiner relies of PRICONE.

The shortcomings of PRICONE are discussed above with respect to the first issue on appeal. These shortcoming apply equally to this issue.

Therefore, this rejection is also improper as OCHI and PRICONE, in combination, fail to teach or suggest the recited printed layer comprising printed parts with "the discontinuous and printed parts being isolated from one another, a maximum printed length of each part being 10 mm or smaller, an interval of isolation between each part and an adjacent part being at least 1 mm at the narrowest" or the specific claim 5 and 20 recitation that the separation interval of the printed parts is 1 mm.

The dependent claims are allowable at least for depending from an allowable claim.

9. Conclusion

In view of foregoing, it follows that:

1) the rejection of Claims 1-11, 13-14, 16, and 19-20 over PRICONE and NILSEN ("NILSEN"); Claims 12 and 17 over PRICONE, NILSEN, and OCHI; and

2) the rejection of Claims 1-6, 9-13, 16-17, and 19-20 over OCHI and PRICONE; Claims 7-8, and 14 over OCHI, PRICONE, and NILSEN; and Claim 15 over OCHI, PRICONE, and METHA et al.,

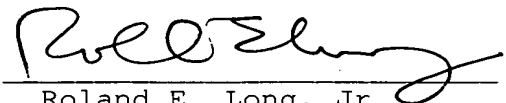
are all improper and should be reversed.

Reversal of these rejections is accordingly respectfully solicited.

Respectfully submitted,

YOUNG & THOMPSON

By



Roland E. Long, Jr.
Attorney for Appellants
Registration No. 41,949
745 South 23rd Street
Arlington, VA 22202
Telephone: 703/521-2297

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10. Appendix

The claims on appeal:

1. (previously presented) Retroreflective sheeting comprising a retroreflective base having a light-incident layer on the light-incident side thereof and a fluorine-containing resin film having a total light transmittance of 80% or more which is laminated on said light-incident layer on contact with an adhesive layer, wherein a printed layer made of discontinuous and individual printed parts is provided between said fluorine-containing resin film and said adhesive layer,

the discontinuous and printed parts being isolated from one another, a maximum printed length of each part being 10 mm or smaller, an interval of isolation between each part and an adjacent part being at least 1 mm at the narrowest.

2. (original) The retroreflective sheeting according to claim 1, wherein said printed layer is formed of a printing ink composition comprising at least one binder resin selected from the group consisting of fluorine-containing resins, acrylic resins, polyester resins, urethane resins, and vinyl chloride resins.

3. (previously presented) The retroreflective sheeting according to claim 1, wherein said printed layer is a layer of a repetitive pattern made up of individual printed parts of a same design which are isolated from one another.

4. (previously presented) The retroreflective sheeting according to claim 3, wherein the maximum printed length of said individual printed parts is each 10 mm.

5. (previously presented) The retroreflective sheeting according to claim 3, wherein the interval of said printed parts is 1 mm at the narrowest.

6. (previously presented) The retroreflective sheeting according to claim 1, wherein the total area of said printed layer is 80% or less based on the entire area of said light-incident layer.

7. (original) The retroreflective sheeting according to claim 1, wherein said fluorine-resin containing film has its side to be in contact with said printed layer

treated by a surface treatment so as to have a surface tension of 31 dyne/cm or more.

8. (original) The retroreflective sheeting according to claim 7, wherein said surface treatment is a corona discharge treatment.

9. (original) The retroreflective sheeting according to claim 1, wherein said fluorine-containing resin film has a total light transmittance of 85% or more.

10. (original) The retroreflective sheeting according to claim 1, wherein said fluorine-containing resin film comprises tetrafluoroethylene-ethylene copolymers or polyvinylidene fluoride.

11. (original) The retroreflective sheeting according to claim 10, wherein said tetrafluoroethylene-ethylene copolymers have a tetrafluoroethylene unit content of 15 to 85% by weight.

12. (original) The retroreflective sheeting according to claim 1, wherein said adhesive layer comprises a pressure-sensitive adhesive.

13. (previously presented) A retroreflective sheet, comprising:

a retroreflective base provided with a surface layer on a light-incident side;

an adhesive layer provided on and in contact with the light-incident side of the retroreflective base;

a printed layer of discontinuous and individual printed parts provided on and in contact with the adhesive layer; and

a fluorine-containing resin film having a total light transmittance of at least 80% provided on said adhesive layer and on said printed layer, the resin film contacting the printed layer and contacting the adhesive layer in areas apart from the printed layer,

the discontinuous and printed parts being isolated from one another, a maximum printed length of each part being 10 mm or smaller, an interval of isolation between each part and an adjacent part being at least 1 mm at the narrowest.

14. (previously presented) The sheeting of claim 13, wherein the base comprises:

- a releasing layer;
- a base adhesive layer contacting the releasing layer;
- a reflective layer provided on the base adhesive layer; and
- a prism layer contacting the reflective layer, the surface layer contacting the prism layer.

15. (previously presented) The sheeting of claim 13, wherein the base comprises:

- a releasing layer;
- a base adhesive layer contacting the releasing layer;
- a support layer contacting the base adhesive layer;
- a binder layer contacting the support layer;
- beads embedding in the binder layer; and
- a beads fixing layer covering the beads, the surface layer contacting the beads fixing layer.

16. (previously presented) The sheeting of claim 13, wherein a side of the fluorine-containing film in contact with said printed layer has a surface tension of at least 31 dynes/cm.

17. (previously presented) The sheeting of claim 13, wherein,

the adhesive layer is a pressure-sensitive adhesive layer; and

the printed layer comprises plural independent printed parts arranged in a repetitive pattern, each of the printed parts being separated from the other printed parts, and each one of the printed parts is a geometric duplicate of other ones of the printed parts.

18. (canceled)

19. (previously presented) The sheeting of claim 17, wherein the maximum dimension of the independent printed parts is 10 mm.

20. (previously presented) The sheeting of claim 19, wherein the independent printed parts are arranged with a separation interval of 1 mm.